

11

THE DIGITAL PORTFOLIO

AS A SUPPORT FOR REFLECTIVE PRACTICE IN ELEMENTARY SCHOOL TEACHERS: AN
IMPROVEMENT-ORIENTED CASE STUDY

**EL PORTAFOLIO DIGITAL COMO APOYO EN LA PRÁCTICA REFLEXIVA EN DOCENTES DE UNA ESCUELA
PRIMARIA: UN ESTUDIO DE CASO ORIENTADO A LA MEJORA**

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ABSTRACT

The purpose of this article describes a study about the use of the digital portfolio as a pedagogical tool to promote reflective practice in elementary school teachers. The study is developed in the elementary school “Libertadores de América” in the city of Pachuca de Soto, Hidalgo, Mexico; towards the transition of the New Mexican School. Its analysis is carried out from a qualitative approach, under an action-research, in which a questionnaire was applied, managing to identify areas of opportunity and improvement in seven teachers of the school regarding their technological skills and competencies, which promotes a pragmatic reflection in their educational environment. The scope of this research aims to study the potential use of the digital portfolio in the quality of reflection, to promote the growth of the teacher, as well as a continuous improvement of their educational practice.

Keywords:

Reflective practice, digital portfolio, ICT, New Mexican School.

RESUMEN

El propósito de este artículo describe un estudio acerca del uso del portafolio digital como herramienta pedagógica, para fomentar la práctica reflexiva en docentes de educación básica. El estudio se desarrolla en la escuela primaria “Libertadores de América” en la ciudad de Pachuca de Soto, Hidalgo, México; hacia la transición de la Nueva Escuela Mexicana. Su análisis se realiza desde un enfoque cualitativo, bajo una investigación-acción, en el que se aplicó un cuestionario, logrando identificar áreas de oportunidad y mejora en siete docentes del plantel respecto a sus habilidades y competencias tecnológicas, que promueva una reflexión pragmática en su entorno educativo. El alcance de esta investigación pretende estudiar el potencial uso del portafolio digital en la calidad de la reflexión, para promover el crecimiento del docente, así como una mejora continua de su práctica educativa.

Palabras clave:

Práctica reflexiva, portafolio digital, TIC, Nueva Escuela Mexicana.

INTRODUCTION

The use of digital portfolios in basic education teachers offers numerous benefits such as the effective organization and storage of students' work, projects and evaluation, which facilitates the access and search for information from anywhere when it is considered necessary. It also allows evaluating and providing feedback in a more efficient way, since it allows the teacher to add comments directly to the students' work and share them quickly and easily.

As mentioned by Díaz Barriga et al. (2015), the digital portfolio has taken great importance for the educational field since it is considered as a tool that allows to carry out the teaching-learning process, it also promotes self-reflection, self-evaluation, and allows to review and analyze the progress of students, allowing to identify areas for improvement and develop strategies to strengthen their teaching practice.

On the other hand, the reflective practice of teachers allows them to analyze and rethink their own educational practice, which requires a critical thinking process in which teachers constantly question their actions, decisions and results; they try to examine teaching strategies, evaluate their effectiveness, identify strengths and areas of opportunity and constantly seek to improve the quality of teaching.

This research work is based on the importance of these reflective practices supported by the use of a digital portfolio that allow teachers to develop their digital competencies in their educational practice within the elementary school "Libertadores de América" of the La Raza colony in the city of Pachuca de Soto, Hidalgo towards the transition of the new Mexican school.

In the contemporary educational panorama, the notion of reflective practice in teachers emerges with increasing significance, understood as a process of self-reflection that seeks to improve teaching through the critical and continuous analysis of the teacher's actions, decisions and experiences in the classroom. Reflective practice is not a recent concept; however, in recent decades it has been consolidated as a key strategy for teachers' professional and personal development.

This renewed relevance of reflection in teaching is intertwined with the accelerated advance of information and communication technologies (ICT), which have significantly reshaped educational dynamics, teaching methodologies and the tools available to educators. It is in this context that the digital portfolio emerges as a valuable tool to support, systematize and demonstrate the reflective process of the teacher. Likewise, the digital portfolio, more than a simple repository of evidence, is positioned as a dynamic platform that allows teachers to collect, organize,

reflect and share their pedagogical practice, thus becoming a means that facilitates self-evaluation and metacognition, key elements in reflective practice.

It is in this sense that a Dewey (1989) point out that reflection is an active, deliberate and rigorous process that goes beyond the simple action of thinking. Dewey explains reflection as a sequence of thoughts that arises from doubt, perplexity or uncertainty experienced in problematic situations. These situations require a pause and deeper inquiry in order to understand and act appropriately. He also indicates that reflective thinking is difficult to define as thinking because it is complex, even more so when a qualifier such as reflective is added as it implies:

- A state of doubt, of hesitation, of perplexity, of mental difficulty in which thought originates.
- An act of searching, pursuing, investigating, in order to find some material to clarify the doubt, and to dispel the perplexity.

In the context of education, teachers should create environments where students can have meaningful experiences, face real problems and then be guided in the process of reflecting on those experiences. The idea is that teachers become reflective learners, that is to say, that they can look critically at their practice, recognize areas for improvement and adapt and modify their teaching strategies and methods according to the changing needs of students and to the educational context.

Rodríguez & Rodríguez (2014), indicate in their research on reflective practice supported by the use of the digital portfolio that this has been well valued for the development of the reflective process of the teacher by contributing in a positive perception on the improvement of their performance, the planning of their classes and a better interaction with students.

Among the most outstanding benefits of its use, he mentions that it offers an opportunity for reflection on the objectives of teaching, the teacher-student relationship and the effectiveness of teaching strategies, promotes professional dialogue among peers on teaching, and it is an effective means to promote a process of reflection and learning on their teaching role and their teaching.

He defines the reflective practice of teachers as a systematic attitude of analysis and evaluation of their academic work in order to design new strategies that can have a positive impact on their teaching. He also mentions that reflective practice should rescue teaching knowledge, should be endorsed to situations, actions and concrete problems and should be linked to action and transcend the classroom space, should be focused on two areas of the educational process: inside the classroom (teaching activities, curriculum, students and the teacher's professional performance) and outside (educational policies,

teachers' working conditions, institutional educational projects, etc.).

On the other hand, Domingo (2021), proposes to contribute to the development of reflective teachers interested in learning from their own practice, since society demands a rethinking of the functions and tasks required from teachers to achieve the goals of education; likewise, the author proposes a series of competences in accordance to the new functions of teachers and the evolution of continuing education:

1. Organize and animate learning situations.
2. Manage the progression of learning.
3. To elaborate and develop differentiation devices.
4. Involving students in their learning and in their work.
5. Teamwork.
6. Participation in school management.
7. Informing and involving the students' parents.
8. Use of new technologies.
9. Address the duties and ethical dilemmas of the profession.
10. Organize their continuing education.

He mentions that human beings can exercise their reflective capacity spontaneously without requiring an explicit or a formal learning, so it can be said that human beings are capable of reflecting and thinking innately, however, reflective practice is a learned activity that requires a methodical, regular, instrumented, serene and effective analysis and that is only acquired through voluntary and intensive training.

This leads us to infer that reflective thinking creates an amalgam between theory, practice and reality in the classroom that is lived in each educational center, leading us to inquire especially in the professionalization of teaching action through the knowledge that is created in the classroom and its management in education; which leads the teacher to learn to know how to do, acting and reflecting from practice to be able to design innovation projects and educational intervention.

For his part, Anijovich (2018), focuses on reflective practice in in-service teachers and how it can improve teaching and promote the autonomy of teachers regarding their practice, also analyzes the different ways in which reflective practice can be applied in formal and informal learning contexts through innovative proposals in teacher training, which instead of prescriptive knowledge value professional experience, prior knowledge and reflection as a method of articulating theory and practice, theoretical knowledge with experiential knowledge.

Systematic reflective practice requires, above all, time and space because it is necessary to interact and exchange ideas and opinions within the school environment. Therefore, in addition to planning actions and accompanying the process, conditions are required that provide the context to carry it out, such as an appropriate climate of trust so that this reflection (deep and critical) can take place.

A clear example of the above is the recording and analysis of critical incidents; to use this tool requires an unplanned and problematic event that occurs during the educational practice, either witnessed by the teacher who analyzes it or by other colleagues, this is based on the fact that it is impossible to reflect on everything that happens in the classroom, by choosing a critical incident that is relevant to the teacher, and sharing it, it is possible to initiate a process of reflection on the practice.

The teacher can use the work with problems of practice, because without constituting a critical incident in the classroom, it is possible to identify problems that are relevant to the teacher and share it with colleagues to broaden their perspective through other ideas contributed by parents, students, managers or members of the educational community.

Another tool would be to use questions or uncertainties, during the teaching practice, it is common to formulate questions that the student is expected to answer, but this tool implies to think first what questions will be formulated before, during and after the class. By proposing questions in which relevant aspects for training can be focused, it favors reflection, such questions are structured around the organizational dimension, (that is, aspects about the management of a class: general strategies to be used, materials, resources, organization of activities).

Also about academics (what to teach, with what scope, what is deepened, what is prioritized and what is left out). And finally, on socialization and biographical construction as a teacher, that is, questions and issues directly related to professional training. Likewise, it is necessary to formulate questions that promote systematic critical reflection, and if these are shared and analyzed in teacher meeting spaces, it is even more valuable in a framework of collaborative reflection on teaching practices.

Finally, peer observation is a practice that is linked to evaluation, it emphasizes the issuing of a value judgment on what is observed and monitored.

However, this observation can encourage reflection, and if it is carried out among pairs of teachers, the reflective potential becomes increasingly visible in the framework of interpretation. Learning is taken from classroom observation to identify problems and improve teaching practice. Observation is a fundamental piece in building a reflective

practice to the extent that an analysis, critique and reflection on the action of past and future teaching practice are carried out.

For many years the portfolio was elaborated in physical format, however, with the evolution of technologies, today we have portfolios in digital support, this is how they can be known as electronic portfolio, digital portfolio or e-portfolio. This technological tool is built on platforms and with digital resources that allow them to be versatile, flexible, with scope, access, use and storage of multiple formats in the presentation of both visual and auditory documents that include text, images, video and sound.

There are several types of portfolios that suit different objectives and different audiences, and these can be developed by individuals or institutions. Among the various varieties of digital portfolios, it is necessary to mention those that were created for a particular course, which have a limited period of development, and portfolios that support information on the professional development of a person and that are built and updated throughout life, and these are the ones that lead us to deepen on the educational applications of this tool.

Barbera et al. (2009) point out two characteristics that differentiate a portfolio from any other set of information that can be elaborated:

1. A digital portfolio is not a simple collection of works or products in them, but is accompanied by relevant selection decisions.
2. A digital portfolio would not be complete if it does not include an explicit or implicit reflective element.

He also points out that there can be *“portfolios as academic assessment (and learning or evaluation) tools, and portfolios as personal tools, focused on the presentation of personal achievements, acquired competencies or professional experiences”*.

Díaz Barriga et al. (2012), for their part, mention that the use of digital portfolios has gained significant momentum in the last decade as an innovative resource in the evaluation of student learning and in the training and evaluation of teachers. In some of the curricular reforms it has been introduced as an alternative to conventional evaluations, both for the student and the teacher, unfortunately this instrument is only considered as a collection of evidence of performance and not as a real instrument for the acquisition of knowledge and ways of acting and above all as an instrument that encourages reflection and self-evaluation that occurs in specific socio-educational and cultural contexts, it is in this sense that the digital portfolio is cited by various specialists as a suitable resource for authentic evaluation.

Its structure and content vary according to the purpose of each portfolio, in this sense, Seldin (2013), refers that the

teacher's portfolio for accreditation or promotion purposes should contain:

Documents prepared by the teacher him/herself: such as statements about his/her educational beliefs, his/her courses, professional curriculum, evaluations of his/her teaching performance, etc.

Documents prepared by others, but that refer to the teacher: communications or writings from colleagues or students that talk about their performance and feedback on their courses, honors and recognitions, evidence of their students' learning achievements and results.

Portfolios with formative purposes usually have a more varied structure integrating much more information about their educational practice, specific results of the teaching-learning processes and elements that contemplate reflection, either through a questionnaire or through an introduction to each evidence integrated to the portfolio.

On May 15, 2019, a fundamental modification for the transformation of education in our country was consolidated: the reform to Articles 3.31 and 73 of the Political Constitution of the United Mexican States. Derived from this legal reform, three secondary laws were approved, one of them related to the General Education Law which, among other mandates, lays the foundations for the generation of study plans and programs more in line with the national reality, as well as the current needs of students in Mexico.

This conception of education that promotes the transformation of society resulted in the proposal to build the New Mexican School (NEM) throughout the 0 to 23 years of age, with the clear idea that education should be understood for life, under the concept of learning to learn, continuous updating, adaptation to changes and lifelong learning.

It is in the new Mexican school, where the right to education with a focus on human rights and substantive equality, from the initial level to higher education, established in the third article of the Political Constitution of the United Mexican States, is concretized, so that the curriculum, with its framework and curricular structure, is recognized as a collective proposal that is under permanent construction, then it would be necessary for teachers to have materials that facilitate its understanding.

It is in this sense that the New Mexican School conceives teachers as professionals focused on student learning, who generate inclusive learning environments, committed to the constant improvement of their practice and capable of adapting the curriculum to their specific context, for which it is established in principle, as a merit-based professional development system, subject to evaluation processes that allowed for continuous, relevant and quality improvement.

Likewise, teacher autonomy is defined as a critical exercise practiced by teachers in educational processes, in constant dialogue with students, to decide the scope and limitations of their pedagogical actions, inside and outside the school, this autonomy allows a permanent reading of reality to redefine their teaching, planning and evaluation according to the circumstances that mark each process, subject and their knowledge.

Today, Information and Communication Technologies (ICT) are an important factor in the transformation of the global economy and the accelerated changes occurring in society. In addition, we have tools that help us with the exchange of information and communication in addition to the realization of productive activities, to facilitate trade, science, entertainment, education, and countless activities of modern life in the XXI century.

When we talk about ICTs, we are talking about those technologies that allow us to transmit, process and disseminate information instantaneously through a computer, cell phones, televisions, portable audio and video players, video game consoles, among others, as well as offering a myriad of services such as email, information search, online banking, and music downloads, among other activities.

The incorporation of ICT in institutions was traditionally marked more by technology than by pedagogy. In order to incorporate these new technologies, it is necessary to have the appropriate infrastructure, the availability of software and that teachers are trained to use and manipulate these technological resources according to their needs.

In Mexico, through the Ministry of Public Education (SEP), actions have been carried out since the 1980s with the introduction of educational technologies as part of various strategic lines of action to help raise the quality of education, thus, in 1986, the project for the introduction of electronic computing was implemented in telesecundarias; in basic education (COEEBA-SEP, 1986-1994) the Siglo XXI classroom (1994), the School Network (1999), Enciclomedia for secondary education (2003), digital skills for all (2010) and more recently learning to learn with ICT for basic education and the program @prende.mx program of the SEP (2013), which sought to reduce the digital divide by providing electronic devices (laptops and digital tablets) to children in 5th grade of elementary school throughout the country.

In the 2013, as part of the National Development Plan, the Coordination of the National Digital Strategy was created, which implemented the *Digital Inclusion and Literacy Program* (PIAD), with the discourse "towards transformation with quality education" (Government of Mexico 2016), this strategy contemplated 3 lines of action:

1. Development of a national educational informatics policy, so that students can improve their learning capabilities through ICTs.

2. Increase the distribution of computers and guarantee connectivity in schools.
3. Satisfy the use of technological tools at all educational levels.

The objectives of PIAD were to strengthen the educational system through the delivery of personal devices, pre-loaded with content to reduce the digital divide; to encourage the use of ICTs in the teaching-learning process; to promote interaction between the actors of the educational system (students, teachers and parents) to strengthen learning among students in public institutions and thus help to overcome the educational backwardness.

As for the State Development Plan of Hidalgo (2023), it was proposed to provide educational services with sufficiency, quality and relevance, ensuring equal access to educational levels and with resources allocated to impact programs that affect the improvement of the welfare conditions of students, as well as increasing access to information technology and communications (ICT) and strive to provide universal, open and free access through digital platforms to information derived from humanistic and scientific research. With regard to teacher training, it is proposed to establish a system of updating and training aimed at improving the practice of teachers, taking into account factors such as professional experience, schooling, continuing education, health and safety conditions, counseling, support and accompaniment, school conditions, social appreciation and recognition, and professional spaces.

As of 2020, the SARS-CoV 2 pandemic forced the educational system to rethink the idea of using ICTs in non-face-to-face educational processes, since it seems that policies for the incorporation and use of ICTs condition learning, teacher training, as well as the design of educational materials for digital connectivity, since the inequality in the conditions of access to technologies for students is evident and only deepens them even more, which impacts on the teaching that is taught.

MATERIALS AND METHODS

The present research is based on a methodological reference of the qualitative approach, since it is the one that best suits the characteristics and needs of the research.

One of the objectives was defined as identifying the level of reflective quality of teachers on their educational practice presented in the portfolios. It is intended to study the potential use of the digital portfolio in the quality of reflection to promote the teacher's growth, as well as a continuous improvement of their educational practice.

For the evaluation instrument, it was decided to use Larrivee's model (2008) because it is the model that mostly reflects a theoretical approach adapted to the study

of teachers' reflection on their educational practice. This model presents four levels of reflection: *Pre-Reflection*, *Superficial Reflection*, *Pedagogical Reflection* and *Critical Reflection*. It also proposes some basic characteristics of each level and indicators for each level. These indicators, adapted to the instrument for evaluating reflective practice, help us in the process of analyzing the level of reflective quality of the teachers in this project.

The **Pre-Reflection** and **Superficial Reflection** levels are more focused on teaching strategies and methods to achieve learning objectives. Teachers focus their analysis on what happens in the classroom.

At the **Pedagogical Reflection Level** are the teachers who reflect on pedagogical concepts and knowledge, take into account educational goals and the theories that support their attainment. They contrast their conceptions and beliefs with their educational practice and take into account students' previous knowledge, difficulties, perceptions and opinions.

At the **Critical Reflection Level**, teachers reflect on the ethical implications of their educational practice, have a broader and multidimensional view of the educational process, contemplating its ethical, social and political implications and how they can contribute to social equity and the construction of a more fair society.

The instrument that was applied was designed digitally on the *Google Forms* site, with closed questions, in the first section the identification data of the participants is collected and in the subsequent sections the items elaborated for this research.

This instrument made it possible to analyze and measure the teachers' ability to carry out reflective practices, as well as to evaluate their ICT competencies in different key areas. The results obtained in each section provided information on self-awareness, analysis of teaching practice and informed decision making, as well as an overall assessment of teachers' ICT skills. These results will provide a guideline to identify areas for improvement and design a specific training program with the objective of strengthening teachers' digital skills and improving teaching in digital environments.

RESULTS Y DISCUSSION

The following are the results of the diagnostic instrument applied for this study, which help us to visualize a panorama of the teachers surveyed:

Of the 7 teachers surveyed, 6 are female and one is male; all teachers are over 31 years old and the oldest is already over 51 years old; 6 teachers have bachelor's degrees and one has a master's degree; 2 teachers surveyed teach 3rd grade, 3 teachers teach 4th grade and 2 teachers teach 6th grade; we have one teacher with 7 years teaching,

one with 9 years, one with 13, two teachers with 15 years, one with 19 and one with 41 years dedicated to teaching.

From the results obtained on the level of reflection based on the matrix proposed by Larrivee (2008), it is possible to identify some differences between the levels of reflection of the teachers. This is why they were classified into two groups with similar characteristics.

Within the first group we find teachers who in their reflective process present mostly features with characteristics of a superficial level of reflection, showing a concern for the strategies and methods used to achieve the learning objectives. They focus on the needs and difficulties presented by their students; show little self-criticism and a superficial analysis of the effectiveness of their implemented strategies.

In the second group, the reflective process presents a level of pedagogical reflection with traits of critical reflection, since teachers analyze the impact of their pedagogical practices on student learning and show a greater commitment to the continuous improvement of their educational practice.

It can also be interpreted that teachers have a certain degree of knowledge in the use of digital tools since 4 of them use repositories; 5 know where to look for information; 4 teachers generate multimedia material for their classes; 4 teachers use the digital portfolio; 4 teachers communicate with their students with the support of ICT; in addition, 6 teachers are constantly trained in the use of digital tools.

CONCLUSIONS

Most of the teachers surveyed identify the digital portfolio, use it and relate this tool to their pedagogical practice; however, they do not use it in its entirety to make significant changes in their students or in themselves during the teaching-learning process.

Derived from these conclusions, an intervention proposal is generated with the creation of a course-workshop to promote the creation and use of the digital portfolio and thus generate better educational practices and generate new and better technological competencies in their students.

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